

RICHEY (S.O.)

THE FADS AND FASHIONS OF SURGERY.

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As late as the middle of the eighteenth century, the regimental surgeon in the Prussian army shaved, as part of his duty, the officers of his regiment. To-day, if that were the only way in which an officer could be shaved, it would be a military fashion to wear long beards. Though knowledge has lifted the surgeon among our cousins across the water above his early associations, the company of barbers, to approximate rank with the physician, he is not even now distinguished with an academic degree. In America no entangling alliances of this kind have existed, to be shaken off, for the requirement of a new and sparsely settled country that the practice of medicine and surgery be united in one individual has identified surgery with medicine, and has included both in an academic degree, the least of its advantages; the requisite qualification being the greatest—wisdom in counseling an operation and the ability to do it. This brings us to a question of large dimensions, which I shall not attempt to answer. For the ultimate welfare of the client are these functions better exercised by *two* individuals, or are they better united in one person?

The latitude of this paper denying an exhaustive treatment of such a question, your attention is asked to the consideration of one which arises in a development of our environment, and which may be changed only by slowly changing conditions. The American surgeon has contributed not less than his just part to the growth in the knowledge and technique of our science, but are we not in need of the conservative mind to save to us the respect we possess?

*Read in the Medical Society of the District of Columbia, February 12, 1896.

Knowledge *and* experience in the same person commonly result in a conservative mind. What has been called "the intuition of experience" is a valuable possession. Enthusiasm and enterprise are also admirable qualities, and when combined with ambition and energy, are essential to the work and progress of the world, but they are best without an element of rashness, which is incompatible with *scientific methods*. That mind is not fitted for our own profession which is without a sense of personal responsibility, and which is not qualified to put in practice those measures which are best for the constitutions entrusted almost absolutely to its care; not what is best for the interruption of the immediate discomfort and its symptoms, but what will have the most beneficial, and the least deleterious, influence upon both the present and the future of the life. *Moral* responsibility does not cease with the discontinuance of medical (or surgical) attendance for the present affection, but involves the remote influence of what is done and what is omitted. This sense may often embarrass its possessor, but it wins confidence and promotes obedience to the "golden rule."

We are a restless and impatient people, and our rapid growth is both dependent upon and a cause of our restlessness. A science must be actually of slow growth; ours above all others demands patient plodding and perseverance. Its field, during the twenty and more centuries through which the art of healing has been practiced, has been worked over again and again. Some minds do not realize that "there is no high road to fame," and with a desire for notoriety, fostered from the cradle in this era, any device with which a name may be connected, from a modified obstetric forceps to a pseudo anti-toxin for tuberculosis, is seized upon and exploited for its gratification. This fact is illustrated by the catalogues of instrument makers and of manufacturing apothecaries, in which instruments and formulæ are so distinguished, and by the indorsements of certain waters and proprietary combinations.

To this class of performances belong also a number of *nagging* operations, some possessing the possibility of benefit; some, not only irritating and irrational, but positively harmful through the trepidation they cause, if in no other way. The intention of devising an operation is not at all questioned, but the persistence in its practice after observation and experience have shown it to be of doubtful value, and by those less wise than the

originator. A minor mischief arising from such proceeding is the reproach which it brings, not only upon the surgeon who practices it, but upon surgery as a science. Does any man hold that the surgery of America commands more esteem for the recent and widespread *fashion* of castrating women for any and every kind of reason? Was that conservative surgery? What did it save?

When such a proceeding is the fashion it requires the support of his knowledge that he is doing right to enable one to resist the temptation to do as his fellows do, and thus avoid criticism. In a chronic affection the sufferer's patience grows threadbare, and he becomes irksome to his adviser, who, in the *hope* of speedy relief to his client, and in the *fear* that another may operate, and with success, if he does not, allows himself to follow a fashion against his better judgment—to *do what he would not have done to one of his own*. Intelligent laymen are not long in learning to sneer, as we have heard them do at the operation of circumcision, that for appendicitis, at ocular tenotomy, tonsillotomy, "clearing out the nose," excision of the drumhead, etc., as we never hear them do at operation for ovarian tumor, for hernia, at trephination, or extraction of cataract. They jeer at an operation because fashion has belittled it, and *they* make our clientage.

This paper will not discuss the operations in any field save that to which the writer has given special study, and which he deems of first importance, because it is the area of four of the five special senses.

There are exceptions of emergency to what follows, as *any* operation may have its use. Objection is raised to the routine practices of the day.

Many reasons exist for operation, among which we *must* conclude that the *welfare of the patient* stands first, as few individuals receive such a suggestion without aversion, no matter how slight the operation may be, and submit only when convinced that relief can be secured in that, and in no other way. Next, the element of expectation, which is nearly removed from the mind of the surgeon by asepsis and antisepsis; ambition to be known as an operator; the impression that it is best because others do it; the question of compensation is excluded by the fact that more operations are done in charity than otherwise. In 1890, at New London, a prominent specialist said to me with

a smile: "——'s operation is a good one; he has just received \$1,300 for it."

Surgery has never been so conservative as it is to-day, and never has it shown so little conservatism as in the past fifteen years, during which knowledge, care, cleanliness, antisepsis and anesthesia (local and general) have reduced to an inconsiderable percentage the danger to life. Probably, on account of the reduced pain and risk, the disposition to operate in the region of the trigeminus, where the proceedings are with some exceptions comparatively bloodless, has grown reckless, and that upon tissues exquisitely adapted to special function which even a cicatrix may mar. That there is more snipping in this region than meets with general approval is shown by a rising wave of protest which is appearing in the literature and society discussions;¹ let us hope it will not develop into *reaction*. There is a golden mean which *fashion* never observes.

To condemn a measure, until its devisers and advocates have had a fair hearing, or until its effect, as compared with other means, has been shown by experience, is unwise. But usually there is "the other side," which should be heard *sometime*, especially in face of a growing reluctance to such constant cutting.

Tonsillotomy. The importance of an enlarged faucial tonsil is very much exaggerated. Occurring as a chronic process, while in intercurrent attacks of croup, bronchitis, or one of the exanthemata, it may prove serious, yet excision, save in emergency, is of questionable wisdom, as it can be reduced by proper management,² and time is afforded for this by the chronicity of the condition. This is accomplished by treating the disease-process instead of merely removing the redundant tissue and leaving the disease to reproduce it. In adolescents the re-

¹ This paper was written a year ago; no time was assigned for its reading.

The discussions at the meeting of the American Medical Association in Baltimore last May demonstrate the rapid growth of dissent.

² Dr. H. W. Kendall, Quincy, Ill., (*Journal American Medical Association*, January, 1896,) A Safe and Sure Method of Reducing Enlarged Tonsils, recommends the use of pure hydrochloric acid, a drop being introduced into the secretory ducts (into each of the three) by means of a capillary glass tube, twice a week. He claims it to be painless and that half a dozen applications will reduce a moderately enlarged gland, and thinks "tonsils ought never to be removed with knife or scissors."

currence of the enlargement is seen, after excision; the organ so large sometimes as to extend to the median line, always above and below its normal limits, in which directions the ordinary form of ablation does not diminish the growth. But for the change of shape, the loss of the rounded surface, and the exposure of the lacuna, it would not be easy to realize that the tonsil had ever been reduced.

The effect of an excision may be attributed to three causes: The loss of tissue, the local depletion, and the subsequent cicatricial contraction; all of which is overcome by the persisting hyper-nutritive process, unless the period at which atrophy begins is reached too soon. As a deduction from the observation that tonsillar hypertrophy more commonly occurs in children fed by hand, the cause is probably constitutional; abnormal digestive or metabolic processes, and the removal of proliferated tissue will not cure these.

Applications to the external surface of the gland serve no purpose whatever, but by the use of proper agents in the crypts, injected gently, or passed through the orifices on a cotton-holder, the organ will gradually shrink, until the age of atrophy, which possibility should not be overlooked. Silver nitrat, to promote constructive metamorphosis; kali permanganat, to excite active oxidation; salicylic acid, to neutralize morbid and irritating deposits; each used in proper form and strength is antiseptic, and two of them are astringent. Tonsillotomy in emergency is necessary. As a routine practice, as in the case of those who have excised "their peck of tonsils," it is needless mutilation. The true reason for such practice is that the surgeon finds it a quick and easy way to dispose of an organ which he does not understand; after the manner of Herophilus, some hundreds of years B. C., who hacked at the liver and spleen which he judged "to be useless to the animal economy." God save the mark! Is it not wiser to stand with our hats off in the presence of a mystery we can not solve, than to attack it boldly with a knife? The tonsil has, or has had, some function. Until we know what that is, who can call the mutilation harmless?

Some years ago, a vivacious woman remarked to me that when she went into the office of a colleague, who did this operation whenever circumstances permitted, she "always raised her skirts and tip-toed across the floor for fear of stepping on one

of the horrid things.” It may be impossible to avoid such jeering; if so, it is unfortunate.

Excision and cautery of hypertrophied turbinated bodies occur more frequently than is justified. The hypertrophy is often the first stage of a process which ends in atrophy, the final action frequently having begun at the time of interference, and before superficial hypertrophy has ceased. Operation must accentuate the final condition. It *may* relieve the immediate discomfort, but it *adds* a cicatrix which collects the secretions, causing increased and never-ending annoyance.

The anatomy and the physiological functions of the nasal cavity, give us rational indications; the free passage of inspired air to be warmed by its vast area of mucous membrane overlying plexuses of blood-vessels, constituting “corpora cavernosa,” and to be supplied with moisture before passing through the deeper respiratory passages. The most pronounced direction of the normal current of inspired air, according to Aschenbrandt,³ R. Kayser,⁴ E. Bloch⁵ and E. Paulsen,⁶ is through the upper straight. Paulsen made the first experimental investigation, from which he concludes, that in inspiration “the bulk of air takes an upward course, rises to the bridge of the nose, passes along the roof of the nasal cavities until it reaches the posterior portion when it again descends along a curved route.” The lower nasal passage is not touched by the current of air, for “the inferior border of this current extends at no point beyond the middle of the lower turbinated body.” Kayser’s experiment with powdered magnesia shows that “when tried upon a fairly normal nose in the living, rhinoscopy will reveal the following surprising picture: A more or less dense layer of white is seen at the anterior extremity of the septum, and about 1.5 cm. from the point of the nose at the level of the middle or upper portion of the inferior turbinated body. Thence, the white powder extends along the septum describing a semi-circle from before backward. The lower passage, the floor, and the lower border of the inferior turbinated body are entirely free from the powder; on the upper surface and the anterior extremity of the inferior turbinated body there

³Die Bedeutung der Nase für die Athmung. Würzburg, 1886.

⁴Pflueger’s Arch. f. d. ges. Physiol. Bd. XLI., 1887.

⁵Archiv. Otol., No. 4, Vol. XVII., 1889.

⁶Sitzungsab. der K. Akad. der Wissensch., April 1882.

are a few grains. The anterior vertical border of the middle turbinated body is thickly covered, also its lower border, and the lateral walls of the middle passage are well covered. Above the middle turbinated body as far as it is possible to observe, there is powder, especially upon the septum. Posterior rhinoscopy shows some powder upon the upper part of the posterior pharyngeal wall; it is only with the production of very dense clouds of dust that, under normal circumstances, the deposit of powder upon the posterior wall of the pharynx extends to the lower part opposite the lower nasal passage. Modifications of this picture depend upon the structure of the interior of the nose."

Bloch, of Freiburg, reached the conclusions that "inspired air, in its passage through the nose, gains in heat five-ninths of the difference between its temperature and that of the body; that the air at an average temperature would pass into the pharyngeal cavity through the nose only two-thirds saturated; that small solid particles inspired are in great part retained by the nose, but the nose is not capable of freeing entirely the inspired air of impurities, even with the aid of the naso-pharyngeal cavity."

The arteries, which supply the lining membrane of the nasal fossæ, the ethmoidal cells, and the frontal sinuses, are branches of the ophthalmic and sphenopalatine arteries. They enter the nasal cavity far back in the upper strait, and it may be seen that engorgement of the blood-vessels, or a slight redundancy of tissue, in this space will greatly embarrass breathing, diminish nasal resonance and contribute to overfulness of the plexuses of the turbinated bodies, both directly and indirectly. The radical arteries and veins pass side by side, through foramina into the nose. When arterial dilatation takes place by direct blood pressure from the vascular centers, or as a reflex engorgement from irritation of the intra-nasal nerve endings, the arteries, by pressure, diminish the caliber of the veins at the foramina, check the reflux of blood, cause venous stasis of the nasal contents, obstruction of the mucous gland openings, with consequent cellular infiltration of the intra-nasal tissues, favoring fibrosis, intra-nasal hypertrophy.

In this extremely delicate space of the upper strait, requiring the most careful manipulation to reach it with instruments, the conservative work of the surgeon must be done. Sprays

may reach it, but are evanescent in effect, as they are promptly removed by the abundant secretion excited by their presence.⁷ A 4 per cent solution of cocain, applied here with gentleness and care, causes contraction of the arterial vessels, thus reducing the *influx* of blood; removes their pressure upon the sinuses, thus permitting *efflux* of blood; the gland openings are freed by this influence, and the tissues are further depleted by its effect in unloading the local blood supply of its water. Active circulation is thus promoted in all the intra-nasal tissues, lessening the tendency to connective tissue hyperplasia and encouraging the resorption of infiltrated material. The quickly passing effect of cocain calls for reinforcement by an agent capable of a more sustained impression, and my experience has fixed upon silver nitrat solution, 2 to 10 per cent, saturated with boric acid, as the most effective in increasing the effect of cocain, and in preventing reaction. It should be applied by means of the cotton-holder, like the cocain which has preceded it ten minutes, the necessary ease of manipulation being quickly acquired by one familiar with the anatomy of the region; carelessness may make the first and last visit of one's client identical. So applied it gives no more discomfort than a 1 per cent solution, and is greatly more effective. Cocain, thus used, is devoid of danger and has great therapeutic value in the early stage of engorgement, and by repeated use in the chronic stage of an inflammation; but there *is* danger from it in the hands of "those who stalk where angels fear to tread." Its therapeutic future is great, for it is more than an anesthetic, *because of the way in which it causes anesthesia.*

This proceeding goes to the root of the trouble. It relieves the local disease instead of removing the products of the disease; it may be varied by anything the operator deems better for his purpose; it is not final in the sense of excision. It obviates the use of chromic, mono and tri-chloracetic acids, and

⁷ This is nature's filter, and a reason for believing that intra-nasal pathological changes are of central origin and only limitedly due to external causes. A noxious agent inspired is engaged by the nasal mucous membrane which immediately becomes turgid to prevent its further progress inward, and is then expelled by a flood of secretion before it can secure lodgment; or, if it secures a hold, it is detached by sneezing. When a solution of continuity of tissue exists, a possible *point d'appui*, the resentment of its presence is more violent, and its expulsion more prompt. *Any* operation dulls this reflex action.

galvano-cautery, to all of which there are objections. It renders excision of the hypertrophied turbinated bodies unnecessary unless by pressure upon the septum, or floor of the nose, ulceration is induced. As the middle and lower straits answer chiefly the purpose of drainage, these bodies may usually be neglected, as they grow smaller with the freedom insured to the upper strait, and distressing sequences are avoided. In addition to the objections named must be noted the passage of *cold* air into the middle ear of the side operated, a discomfort which can not be relieved, as the natural protection has been removed. That the operation influences anything but a very temporary ear trouble, which may be helped more simply and less mischievously, is not my experience.

For the foregoing reasons we conclude that it is wiser not to diminish the capacity of the organ and hasten the atrophic process and promote sclerosis by the desiccating influence of inspired air, insufficiently warmed and moistened. If the turbinated bodies were always excised when excessive few individuals would escape, for it has been stated that this condition has been found in the *fetus in utero*. Nations have come and gone retaining their turbinated bodies, as they probably had no surgeons to whom their removal was so important.

The hypertrophied pharyngeal tonsil, or so-called adenoids, have their share in the above comments. Their removal by operation will not cure the vice that causes them, but may result in immediate and deplorable ear trouble, and not infrequently in subsequent changes in the pharyngeal space, which becomes abnormally large after the age of puberty, and filled with hard nodules which collect and retain the secretions. These dry and cause constant irritation and sometimes ulceration, and the subject will probably be *somebody's* patient for the rest of his life. He, whose experience has been great enough to have seen such cases, will hesitate to add to their number, for the question of recurrence has not been satisfactorily considered. Hermet (*Bull. et. Mem. de la soc. de Laryngol. L'Otol.*, etc., Nos. 1 and 2, 1895) operated only fourteen cases of a total of 103, because he thinks, in addition to the risks from the anesthetic and hemorrhage, there is danger of the operation causing meningitis. He has observed adenoids for years in which there were no ill effects. He watches his cases carefully, and operates only when complications arise, as otitis media, headaches, or interference with development.

Excision of the drum-membrane, with the malleus and the incus, is a radical measure, justified by a suppurative process whose focus can not be more simply reached. The enthusiasm of its advocates⁸ has betrayed them into performing it in cases of sclerotic otitis, to which I have demurred from its inauguration,⁹ and some of them ignore the reported cases of unmanageable suppuration resulting from it. Every operation ever devised has been reported successful, at first, in its immediate effect; the failures rarely "come to book," because only an exceptionally well-poised man is willing to record a disaster from an operation, of which others report only successes.

In sclerotic otitis the procedure is irrational, because it contributes nothing to the retardation of the disease whose origin is not local; because it deprives the organ of a protection⁹ provided by nature against certain mischievous agencies, and exposes the deeper-seated, more delicate and more vital tissues to the added action of such agencies; because it removes what, in the altered condition of the structures, is only *one* impediment, and not the chief one. A late announcement by Prof. Politzer, of Vienna, of the result of certain investigations he has been making¹⁰ goes further to prove the irritationality of this measure in sclerotic otitis. He found the local explanation of the distressing tinnitus and profound deafness in this affection, in the sixteen cases dissected, to be "a circumscribed disease of the bony labyrinthine capsule," the cause of which could not be determined. "Two of the cases had gout, but whether in any of them syphilis had any causation in the deafness could not be decided." In this connection your attention is asked to some suggestions made in a paper read by your essayist at the Ninth International Medical Congress, here, in 1887, which may be found in its transactions; also to a paper,¹¹ "A Contribution to the Management of General Atrophy (sclerosis) of the Conducting Apparatus of the Ear," which states: "My reliance has been almost entirely upon vapor of iodine, with good, though not with uniformly satisfactory results."

⁸One of them has informed me within the past year that he has abandoned it.

⁹The primary physiological purpose of the membrana tympani. *Trans. Am. Otol. Soc.*, 1888.

¹⁰*Archives of Otology*, Vol. XXIII., No. 4.

¹¹*Amer. Journ. Med. Sci.*, April, 1887.

The significance of this statement is interesting in view of the suggestion of Prof. Politzer, "considering the benefit often observed from the internal use of iodid of potassium, or iodin, in various diseases of the bones, I would urge * * * that we should resort to the energetic exhibition of one or the other of these remedies internally." The disease is a hyperostosis, and the alteration occurs in the region of the oval window, involving the foot-plate of the stapes, and explains the difficulty and failure of stapedectomy, devised by Dr. Blake, of Boston, for the relief of such cases, and which excited so much hope among us. It *should* finally dispose of the operation of excision of the drumhead and ossicles in sclerosis, or "dry catarrh," for we should bring to bear upon our own work the *common sense that rules in other relations of life.*

In our eagerness to benefit our fellows we have not neglected "the mirrors of the soul."

The proposition to extract the crystalline lens in myopia of high degrees does not seem to have appealed to our spirit of enterprise. Why?

The extraction of an opaque lens in a case of monocular cataract has its advocates, but it gives no advantage, as an aphakic eye in no way balances an eye still retaining its lens. It is justifiable when urged by the patient upon the ground of cosmetics.

Lens opacities pursue such an erratic course that *artificial ripening* should be resorted to with hesitation and care, and in selected cases. Initial cataract may always be initial cataract; the opacity may increase for a time, and then remain at some point of development short of maturity, with useful vision; one may go to maturity and the other, in the same individual, may clear up entirely; all of these conclusions I have seen. That local, or general treatment will lead to a comfortable termination of lens opacity, once begun, can not be determined in view of what its course might have been, but proper diet, regular habits, hot baths, and the regulation of the body functions, have seemed to me to at least retard their development. At the period of life at which such opacities usually occur, this is important; for every shock contributes to the shortening of life, especially in old people, and delay in the development of the opacities may retain useful vision until death, and thus obviate such shock. Many such cases have reached this termi-

nation under my observation, due, as I believe, to my management, for some of them have gotten greatly improved vision. That this always persists is not claimed, but it has done so in a number of cases which have remained under my observation, notably a man of 68 years of age, who had lost his ability to read from symmetrical striated opacities of the lower half of both lenses. His vision was improved to ability to read in less than a year's time, his distress on account of failing vision was relieved, the cause of his trouble was never explained to him, and he read comfortably to the day of his death, six years later. There was no evidence of choroidal or retinal trouble. Serous apoplexy caused his death.

Many of you remember Dr. Flodoardo Howard (of whose case I unfortunately have no notes, and speak from memory). In the summer of 1880, I sat by him on a train leaving the city, and he confided to me that he would soon have to discontinue practice because of double cataract. He had been advised by a colleague that he must wait for maturity and operation, and in his distress he asked me if something could not be done to enable him to continue his work; for while he could write a prescription, he could not read it afterwards, and was growing worse. I told him I did not know his condition, whereupon he said he would like me to examine his eyes. After examination at my office I told him not to sit idle, but to try other means, and he might avoid operation. In about a year, I saw him reading placidly the *Evening Star* on a moving train, and I am under the impression that he always retained useful vision without operation. There were fundus changes.

I have not seen since June, 1894, a woman of 76 years of age, who was under my care the previous winter, at which time she was not able to read or sew, and wandered about the house in an objectless way. She could recognize no one by sight. Her daughter wrote me from Colorado, some weeks ago, that her books are still giving her pleasure, as they had done for more than a year. I found no evidence of fundus changes in this case; striated opacities of both lenses, confined to no segment. $V = \frac{20}{200}$. What are the probabilities of life at 76?

Another woman, 60 years of age, whom I first saw in December, 1893. $V = \frac{2}{5}$, each. By March, 1894, it had improved to $\frac{2}{3}$, with each eye. She went abroad to spend the summer in traveling. In November her vision was less than $\frac{2}{4}$. Now

V. R. = $\frac{2}{4}$, and V. L. = $\frac{2}{3}$ +. Diffuse striated opacity of both. No choroidal changes to be seen. In the left eye the striae are fewer and shorter than in the beginning; in the right eye the opacity is less dense. The progress of the opacities has been at least retarded for two years of keen pleasure.

This may only have happened, and have been due to no influence that I exerted, and I will not multiply cases. The affection is often one of senility, and what retards one will influence the other. Such results seem to me better than to wait, with hands folded, for maturity, or than an artificial ripening, although it may deny glory to the knife and diminish risk to the patient. In my experience, local treatment has not been profitable.

Graduated Tenotomy. "A sparrow can not fall to the ground," etc. No individual can be so small, no act can be so correct (humanly speaking), and no principle can be so great, that it will have no sins to answer for. Homeopathy may be the greatest blessing mankind has known, and yet it has been vicious in showing how much *parade* may be made in doing what leaves the observer in doubt if *anything* has been done; so little that "if it does no good, it may do no harm." An operation introduced about ten years ago would seem to be a direct descendant of homeopathy, as it has the ear marks; everybody must *believe* in it; everybody must do it; it must be done often—that homeopathy of operations, graduated tenotomy of the extrinsic muscles.

Although in some instances, doubtless great comfort has followed this operation, none other ever adopted has probably caused so much irritation and anxiety, has done as much mischief as possible good; has put the client to so much unnecessary expense, has fostered such fine-drawn, unavailing conclusions, or has excited so much contemptuous amusement among our professional brethren. It has its earnest advocates among those competent to judge, and therefore has its merits. It should be a last resource, and the surgeon should know when *not* to do it.

While, by some a disturbance equal to two degrees is considered physiological, in the opinion of others a variation of half a degree justifies *snipping*; and the literature of the past eight years is filled with every kind of experience, elaboration and devisement in this connection. A perfect muscular balance has

been secured by operation without relief, a half degree of heterophoria has remained with distress. Both conditions exist with comfort; even two degrees of muscular unbalance are found unassociated with uneasiness. That heterophoria may be mechanically developed, or increased, by the usual tests, I think the experience of all observers will prove. The explanation of the inconsistencies named is to be found in the innervational peculiarities of the individuals (the patients). With heterophoria, anomaly of refraction nearly always exists (I have never seen an exception); and with full correction of static refraction and the patience to secure its legitimate effect, *physiological* muscular balance may nearly always be secured, which is preferable to a mechanical balance, as the eye is an organ and not a machine. Imperfect cycloplegia, arising from the use of inefficient agents, no matter what mechanical device is substituted, defeats the *perfect* correction of static refraction, and may explain the apparent necessity for tenotomy in many cases. A proper correction, especially when combined with the "prism-gymnastics" of Gould, will in most cases obviate tenotomy.

Fewer surgeons do this operation now than three years ago, and another three years will probably limit the number doing it as a routine practice to those whose youth is seeking experience.

As an instance that the operation has been unnecessarily done, a United States Senator, 57 years of age, consulted me in 1887 for failing vision, for which he had visited two prominent exponents of graduated tenotomy. He was alarmed by the increasing visual defect, but was without pain. They cut his muscle tendons three times and prescribed prisms, dismissing him with the information that he "had active trouble within the eye," for which they recommended nothing. Finding a choroiditis disseminata of both eyes with a history of syphilis in early life, followed by a double iritis, and a meningitis, a prescription for syphilis seemed more essential than a tenotomy. Was this case tabulated as a success to tenotomy? He said: "I am no better and no worse for the operation, so far as I can see;" yet, was the operation harmless?

In 1887 a young woman, who had been for two months under the care of an eminent colleague in a neighboring city, who has great faith in the efficiency of cylindrical glasses of low power, came to me because she had constant pain when her eyes were open. The weak cylindrical glasses (+.25 Dcy.) which she

had been wearing had added nausea to her pain. A correction of static refraction: R. E., + 1 Ds. \odot + .5 Dcy. a 90° ; L. E., + 1.5 Ds. \odot — .5 Dcy. a 180° , relieved nausea at once, and in ten days greatly reduced pain. She became impatient because of difficulty in *reading* all she desired, consulted another, and then placed herself under the care of a specialist in New York. He had done *ten* tenotomies when I last heard of her, a year ago, and she was intending to return to him for another. It is almost incredible. She was a teacher and has changed her occupation. Patience with the correcting glasses would have relieved her esophoria of 2° . I have given only two of a number of cases which have come under my observation, showing the value of a routine practice of graduated tenotomy.

No more fitting conclusion to this paper occurs to me than the title of one a short time ago, by Dr. A. Jacobi—*Non Nocere*.

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